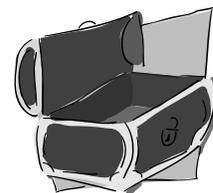


# Glossary



## accuracy

The closeness of a measured value to a true value (See precision).

## acid

Any substance that can donate a hydrogen atom or proton ( $H^+$ ) to any other substance.

## acid rain

Rain characterized by pH values below 6.

## acidic

Characterized by  $pH < 7$ .

## acidity

1. The amount of strong base (e.g. Sodium Hydroxide) necessary to titrate a sample to a pH of around 10.3; measures the base neutralizing capacity of a water.

2. An acid quality or state. (Common Usage)

## aerosols

Liquid or solid particles dispersed or suspended in the air.

## alkaline

Characterized by  $pH > 7$ .

## alkalinity

The amount of strong acid (e.g. Hydrochloric Acid) necessary to titrate a sample to a pH of around 4.5. Measures the acid neutralizing capacity of a water and is often reprinted as ppm  $CaCO_3$ .

## aqueous

Containing or contained in water.

## background concentration

The level of chemicals present in a water due to natural processes rather than due to human contribution.

## base

Any substance that accepts a proton ( $H^+$ ) from another substance.

## benthic

Pertaining to bottom dwelling water animals or plants.

## brackish water

Water containing dissolved salts at a concentration less than seawater, but greater than fresh water. The concentration of dissolved salts is usually in the range 1000 - 10,000 ppm.

## buffer solution

One that resists change in its pH when either hydroxide ( $OH^-$ ) or protons ( $H^+$ ) are added. The stable and known pH value of these solutions make them suitable for calibrating pH measuring devices.

## calibration

To set or check an instrument against an index or standard of known value through some type of proportional or statistical relationship.

## chlorinity

The chlorine concentration of a solution.

## colorimetric method

Many procedures for measuring dissolved substances depend on color determination. The underlying assumption is that the intensity of the color is proportional to the concentration of the dissolved substance in question.

## conductivity

The ability of an aqueous solution to carry an electrical current. Depends upon the concentration of dissolved salts (ions), the type of ions, and the temperature of the solution. Typical units are microSiemens/cm or micromhos/cm. (These are equivalent).

## denitrification

The act or process of reducing nitrate to ammonia. Nitrite may be an intermediate product.

## density

The ratio of the mass of a substance to its volume.

## dissolved oxygen

The mass of molecular oxygen dissolved in a volume of water. The solubility of oxygen is affected nonlinearly by temperature; more oxygen can be dissolved in cold water than in hot water. The solubility of oxygen in water is also affected by pressure and salinity; salinity reduces the solubility of oxygen in water.

|                        |  |                  |  |
|------------------------|--|------------------|--|
| dissolved solids       | Solid particles that have become liquid by immersion or dispersion in a liquid (e.g. salts).   | molecule         | The smallest fundamental unit (usually a group of atoms) of a chemical compound that can take part in a chemical reaction.                                       |
| enrichment             | Making a water more productive (e.g. by adding nutrients).   | natural waters   | Systems that typically consist of the sediments/minerals and the atmosphere as well as the aqueous phase; they almost always involve a portion of the biosphere. |
| eutrophication         | A high level of productivity in a water body, often due to an increased supply of nutrients.   | neutral          | Characterized by pH = 7.   |
| evaporation (of water) | Change from liquid to vapor at a temperature below the boiling point.  | nitrate          | A salt of nitric acid (HNO <sub>3</sub> ). Nitrates are often highly soluble and can be reduced to form nitrites or ammonia.                                     |
| hydrologic cycle       | The series of stages through which water passes from the atmosphere to the earth and returns to the atmosphere. Includes condensation to form clouds, precipitation, accumulation in soil or bodies of water and re-evaporation. | nitrate-nitrogen | Concentrations of nitrate (NO <sub>3</sub> <sup>-</sup> ) are often expressed as mass of nitrogen per volume of water.   |
| hypothesis             | A tentative statement made to test its logical or empirical consequences.  | nitrite          | A salt of nitrous acid (HNO <sub>2</sub> ). Nitrites are often highly soluble and can be oxidized to form nitrates or reduced to form ammonia.                   |
| in situ                | Situated in its original natural place. (Latin)  | nitrite-nitrogen | Concentrations of nitrite (NO <sub>2</sub> <sup>-</sup> ) are often expressed as mass of nitrogen per volume of water.   |
| lentic                 | Relating to, or living in standing water (lakes, ponds or swamps).   | pH               | The negative logarithm of the molar concentration of protons (H <sup>+</sup> ) in solution.  |
| logarithmic scale      | A scale in which each unit increment represents a tenfold increase or decrease.  | photosynthesis   | The process in which the energy of sunlight is used by organisms, esp. green plants to synthesize carbohydrates from carbon dioxide and water.                   |
| lotic                  | Relating to, or living in actively moving water (streams or rivers).   | ppm              | Usually parts per million. (Equivalent to milligrams per Liter in GLOBE calculations).   |
| microSiemens/cm        | Metric unit of measurement for conductivity. Equivalent to micromhos/cm.   | ppm chlorinity   | By weight, equal to milligrams of chlorine per Liter, with the assumption that one Liter of water weighs one kilogram.   |
| Micromhos/cm           | Standard unit of measurement for conductivity. Equivalent to microSiemens/cm.  |                  |  |
| molar                  | Unit of measurement for concentration (moles per liter of solution).   |                  |  |



#### ppt

Usually parts per thousand. (Equivalent to grams per Liter in GLOBE calculations).

#### precipitation

1. The falling products of condensation in the atmosphere. e.g. rain, snow, hail
2. Separation in solid form from a solution due to chemical or physical change (e.g. adding a reagent or lowering the temperature).

#### precision

A measurement for the degree of agreement between multiple analyses of a sample (See accuracy).

#### productivity

The formation of organic matter averaged over a period of time such as a day or a year.

#### proton

A positively charged elementary particle found in all atomic nuclei. The positively charged hydrogen atom (H<sup>+</sup>).

#### reagent

A substance used to cause a reaction, especially to detect another substance.

#### reduce

In chemical terms, to change from a higher to a lower oxidation state (i.e. gain electrons).

#### runoff

The component of precipitation that appears as water, flowing in a stream or river.

#### saline water

Water containing salt or salts.

#### salinity

A measure of the concentration of dissolved salts, mainly sodium chloride, in brackish and salty water.

#### salts

Ionic compounds which in water solution yield positive (excluding H<sup>+</sup>) and negative (excluding OH<sup>-</sup>) ions ; the most common of which is sodium chloride, or "table salt".

#### saturated solution

A solution that contains the maximum amount of dissolved substances at a given temperature and pressure.

#### solubility

The relative capability of being dissolved.

#### solute

A substance that dissolves in another to form a solution.

#### solution

A homogeneous mixture containing two or more substances.

#### solvent

A substance that dissolves another to form a solution.

#### specific gravity

The ratio of the density of a substance to the density of water (at 25° C and 1 atmosphere).

#### standardization

To cause to conform to a standard.

#### standard

A measure with a value established through outside means for use in calibration; a known reference.

#### suboxic water

Very low levels of dissolved oxygen; denitrification occurs (nitrate is converted to ammonia).

#### suspended solids

Solid particles in a fluid that do not dissolve or settle out.

#### suspensions

A mixture in which very small particles of a solid remain suspended without dissolving.

#### tides

The periodic rise and fall of the waters of the ocean and its inlets, produced by the attraction of the moon and sun. Occurs about every 12 hours.

#### titrant

The reagent added in a titration.

#### titration

The process of ascertaining the quantity of a given constituent by addition of a liquid reagent of known strength, and measuring the volume of reagent necessary to convert the constituent through a given reaction.

topography

The surficial relief features of an area.

total dissolved solids

The total mass of solids remaining when a given volume of filtered water is evaporated to total dryness following an accepted protocol.

transparency

Having the property of transmitting rays of light through its substance so that bodies located behind can be distinctly seen.

turbid

Not clear, or transparent due to stirred up sediment.

water quality

A distinctive attribute or characteristic trait of water, described by physical, chemical, and biological properties.

watershed

1. A line of separation between waters flowing to different rivers, basins or seas.
2. A term to mean the area drained by a river or stream. (Common Usage.)

water vapor

Water in the gaseous phase.